

CLAIMS

1. A method for setting a firing temperature of cerium carbonate which is to be fired to produce a cerium oxide abrasive, wherein the cerium carbonate has a fluorine content falling within a range of 10 to 500 ppm by mass and the firing temperature is set in accordance with the fluorine content.

2. The method for setting a firing temperature of cerium carbonate according to claim 1, wherein said firing temperature is set from the following formula:

$$T = (700 + A) - B[\log (F)]$$

where T denotes the firing temperature (°C) of cerium carbonate to be fired, F denotes the fluorine content (ppm by mass) of cerium carbonate to be fired, and A and B are constants inherent to a firing furnace and a temperature elevation condition used in said firing, said constants being obtained from the following formulae:

$$T1 = (700 + A) - B[\log (F1)]$$

$$T2 = (700 + A) - B[\log (F2)]$$

where T1 and F1, and T2 and F2, are optimum firing temperatures (°C) and fluorine contents (ppm by mass), respectively, of two cerium carbonates different in fluorine content and predetermined of their optimum firing temperatures.

3. A method for producing a cerium oxide abrasive comprising firing a raw material of cerium carbonate, in which the temperature of said firing is set in accordance with the method as set forth in claim 1 or 2.

4. A method for producing a cerium oxide abrasive, characterized in that the method comprises firing a raw material of cerium carbonate having a fluorine content F (ppm by mass) falling within a range of 10 to 500 ppm by mass, at a firing temperature T (°C) selected within a temperature range defined by the following formula:

$$730 - 14[\log(F)] \leq T \leq 790 - 10[\log(F)].$$

5. The method for producing a cerium oxide abrasive according to claim 3 or 4, wherein the cerium

carbonate has a fluorine content falling within a range of 50 to 300 ppm by mass.

5       6.    The method for producing a cerium oxide abrasive according to any one of claims 3 to 5, further comprising removing soluble fluorine from the cerium oxide abrasive.

10       7.    Cerium oxide abrasive rods produced through the method as set forth in any one of claims 3 to 5, wherein the cerium oxide abrasive rods contain soluble fluorine in an amount falling within a range of 20 to 1000 ppm by mass based on the mass of the cerium oxide.

15       8.    The cerium oxide abrasive rods according to claim 7, wherein the cerium oxide abrasive rods comprise cerium oxide abrasives having a specific surface area falling within a range of 9.5 to 12.2 m<sup>2</sup>/g.

20       9.    A cerium oxide abrasive slurry comprising cerium oxide, water and a dispersant capable of dispersing cerium oxide, wherein said cerium oxide is obtained from the cerium oxide abrasive rods as set forth in claim 7 or 8.

      10.   A method for producing a cerium oxide abrasive slurry, comprising the method for producing a cerium oxide abrasive as set forth in any one of claims 3 to 6.